

STONEY RUN GREENWAY CORRIDOR PLAN



NEWPORT NEWS PLANNING DEPARTMENT

**NEWPORT NEWS PLANNING COMMISSION
ADOPTED BY CITY COUNCIL JULY 8, 2003**

RESOLUTION NO. 10481-03

A RESOLUTION APPROVING THE STONEY RUN GREENWAY CORRIDOR PLAN AS AN AMENDMENT TO THE CITY'S COMPREHENSIVE PLAN.

WHEREAS, the City of Newport News received a grant in 2001 from the Chesapeake Local Assistance Department to prepare the Stoney Run Greenway Corridor Plan (the "Plan") as part of its local Chesapeake Bay Preservation program; and

WHEREAS, the Plan is consistent with the "Framework for the Future," the City's adopted Comprehensive Plan; and

WHEREAS, the Plan will promote the improvement of water quality, reduce erosion, enhance wildlife areas, provide passive parks areas on publicly owned land, and educate the general public; and

WHEREAS, the Plan furthers the City's goal to develop a system of greenways and recreational trails as recommended in the "Framework for the Future"; and

WHEREAS, the Plan addresses water quality issues, such as: riparian buffers, public access impacts and opportunities, bank and shoreline erosion, and existing flood plain development, as stated in the Framework for the Future; and

WHEREAS, the Plan furthers the City's goal to preserve and protect the natural features and environment of Newport News that are intrinsic to water quality; and

WHEREAS, the Plan has been considered by the Planning Commission for the City of Newport News for recommendation and has been duly advertised by law and the said Planning Commission has recommended its adoption.

NOW, THEREFORE, BE IT RESOLVED by the Council of the City of Newport News, Virginia:

1. That it finds that the Stoney Run Greenway Corridor Plan furthers the environmental and recreational Goals, Policies and Strategies in the City's comprehensive plan, the "Framework for the Future".

2. That it hereby adopts the Stoney Run Greenway Corridor Plan as an amendment to the City's comprehensive plan.

PASSED BY THE COUNCIL OF THE CITY OF NEWPORT NEWS JULY 8, 2003

Bernice I. Barry, MMC
City Clerk

Joe S. Frank
Mayor

A true copy, tested:

Teresa W. Ferguson
City Clerk

Deputy

STONEY RUN GREENWAY CORRIDOR PLAN

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the Chesapeake Bay Local Assistance Department
pursuant to Contract No. 02-1-048.

Prepared by the
City of Newport News
Department of Planning

Approved by the
Newport News Planning Commission on June 9, 2003

Adopted by City Council on July 8, 2003

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INTRODUCTION

Basis in the Comprehensive Plan

During the comprehensive planning process that took place during the early 1990's, citizen task forces recommended creating a citywide greenway system. This resulted in specific policies and strategies, as well as, identification of greenways on the land use map in the adopted 1993 *Framework for the Future*. The 2001 *Framework for the Future* reinforced and strengthened opportunities for greenways by relating water quality improvement strategies to the existing greenway recommendations to be consistent with the State's Chesapeake Bay Preservation Act (CBPA).

Functions and Benefits of Greenways

Greenways ideally are corridors of protected open space managed for conservation and recreation purposes. Their purpose is to protect and enhance natural resources. Most often they follow natural land or water features, and link nature preserves, parks, cultural features and historic sites with each other and with populated areas. Greenways can be publicly or privately owned, and some are the result of public/private partnerships.

Greenways can benefit a community in many ways, they include:

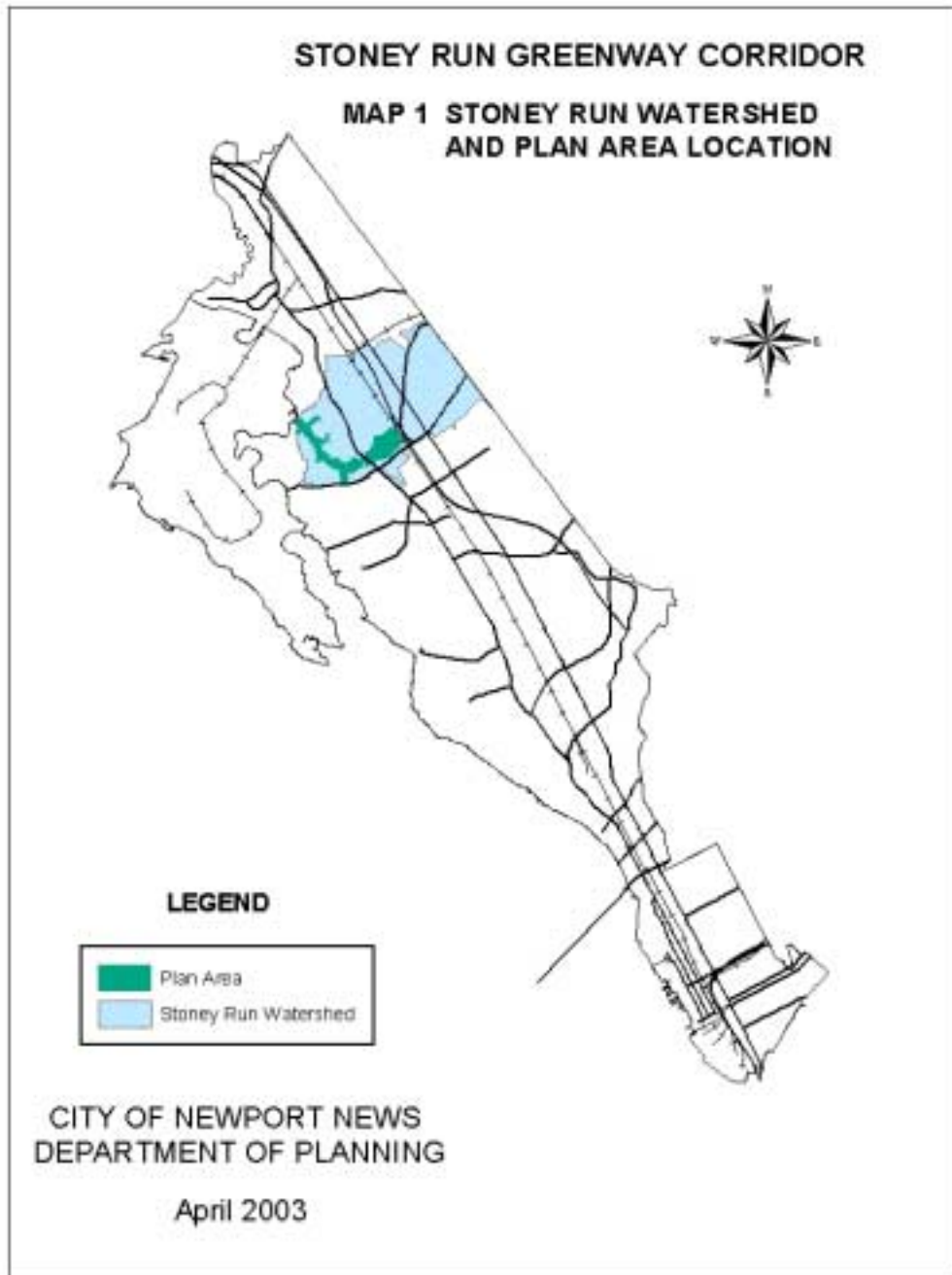
- ❑ Making communities better places to live by preserving and creating open spaces;
- ❑ Protecting the environment;
- ❑ Encouraging physical fitness and healthy lifestyles;
- ❑ Creating new opportunities for outdoor recreation and non-motorized transportation;
- ❑ Strengthening local economies; and
- ❑ Preserving culturally and historically valuable areas.

Greenways protect important habitats and provide corridors for people and wildlife. By protecting land along rivers and streams, greenways help improve air and water quality by preventing soil erosion through stabilization and filtering pollution caused by surface runoff. Greenways also serve as natural floodplains. By restoring developed floodplains to their natural state, some communities can prevent flood damage.

Greenways can be hands-on environmental classrooms. People of all ages can see for themselves the intriguing natural world from which they often feel so far removed.

Greenways connect us to our heritage by preserving historic places and by providing access to them. They can give people a sense of place and a connection to our history. Some greenways draw the public to historic sites.

Greenways provide what many communities seek – close-to-home recreational areas, community meeting places, historic preservation, educational experiences, natural landscapes and beautification. Greenways help build communities because their



neighborhoods are good places to live and help make communities more attractive and friendly places to live.

Stoney Run Historical Context

Stoney Run is located within the City limits of Newport News in the community known as Denbigh. The creek is a branch of the Warwick River, which is a major tributary of the James River. Stormwater runoff into this river directly affects the water quality of the James River and its tributaries. Map 1 illustrates the location of Stoney Run's watershed and the plan area boundaries.

Historically, Stoney Run was one of the critical waterways used to move people and goods within old Warwick County. During the colonial period, the creek was more navigable than it is today. In 1809, the Virginia General Assembly voted to place the Warwick County Courthouse at the intersection of Stoney Run with the old Warwick Road. The Warwick County Courthouse still stands at this intersection today. Today, the creek is mostly shallow and its banks are mostly developed with residential uses. Enhancing its water quality will improve the overall health of the creek, the tributary it flows into and the Chesapeake Bay.

EXISTING CONDITIONS

Watershed

The watershed conditions that are discussed below are those that relate to the overall water quality of Stoney Run. These conditions are: timing of development; land use related pollutant loadings and stormwater outfall locations; and the water quality of the Warwick River.

Time Period of Development

The water quality of Stoney Run reflects the time period of development in the watershed and pollutant loading from that development within the 4,179-acre watershed. There are 8,379 structures in the watershed. Seventy-eight percent (78%) of the structures were built prior to 1988. This is significant in terms of water quality, because that development was built prior to the CBPA's creation and the City's Virginia Pollution Discharge Elimination System permit for non-point source discharges. Seventeen percent (17%) of structures were built between 1989 and 1994, which makes these structures subject to the requirements of the CBPA regulations. Five percent (5%) of the structures were built between 1995 and 2003, which makes these structures subject to both the CBPA regulations and the City's Virginia Pollution Discharge Elimination System (VPDES) permit for non-point source discharges. Both of these regulations require pollutant loading calculations and mitigation if the site exceeds thirty-six percent (36%) impervious cover and if that impervious area encroaches within the 100-foot Resource Protection area vegetative buffer. Map 2 illustrates the Time Period of Development for Structures.

Land Use related Pollutant Loadings and Stormwater Outfall Locations

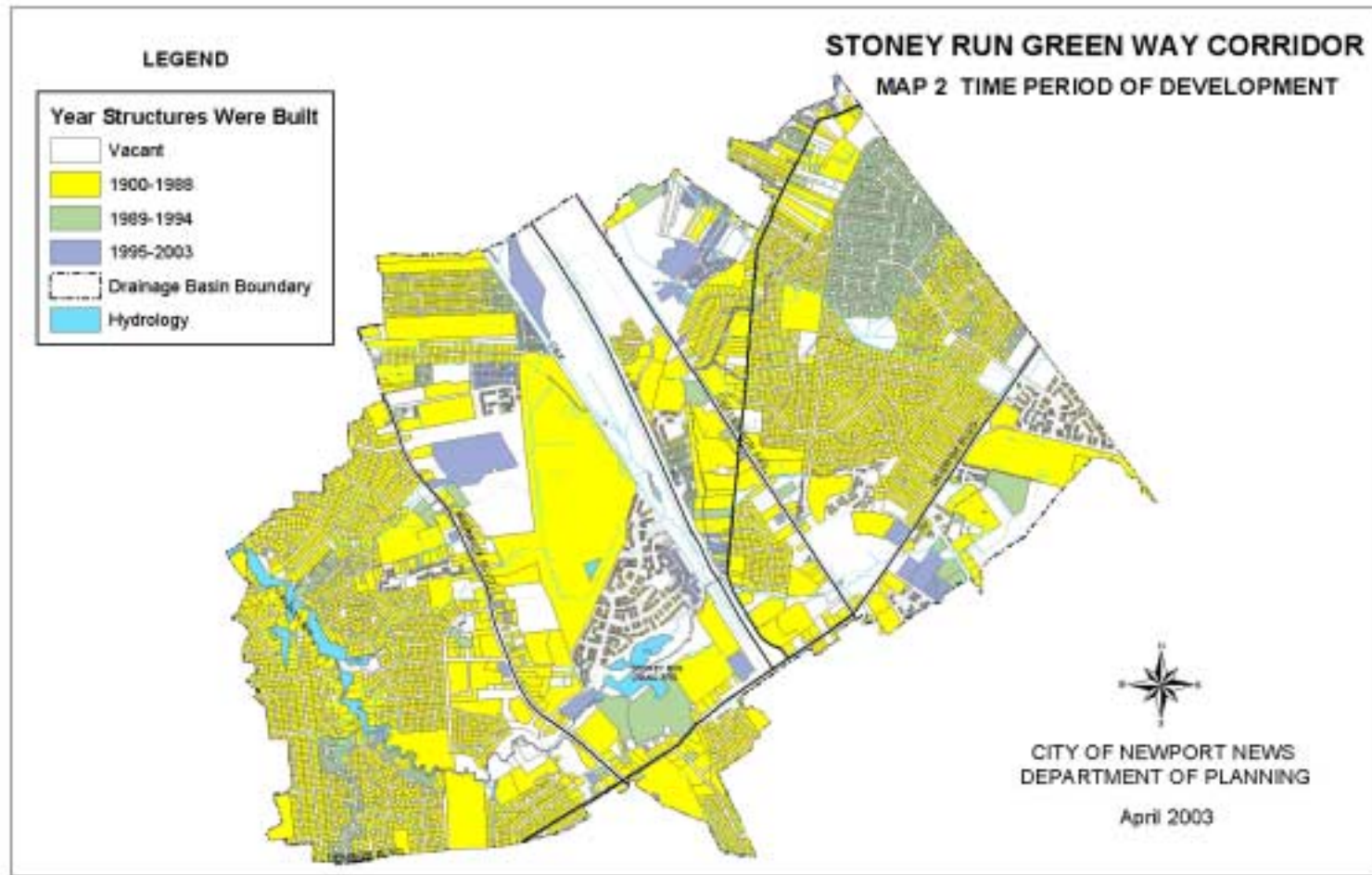
TABLE 1 WATERSHED LAND USE		
	Acreage	Percent of Total
Vacant	635.30	15.20%
Single-Family Dwelling	1,210.25	28.96%
Multiple-Family Dwelling	814.62	19.49%
Community Facility	257.96	6.17%
Commercial	428.97	10.27%
Open Space/Parks	384.26	9.20%
Utility	29.73	.71%
Industrial	50.44	1.21%
Transportation Facility	367.47	8.79%
Total Acreage	4,179.00	100.00%

Source: Department of Planning and Development, March 2003

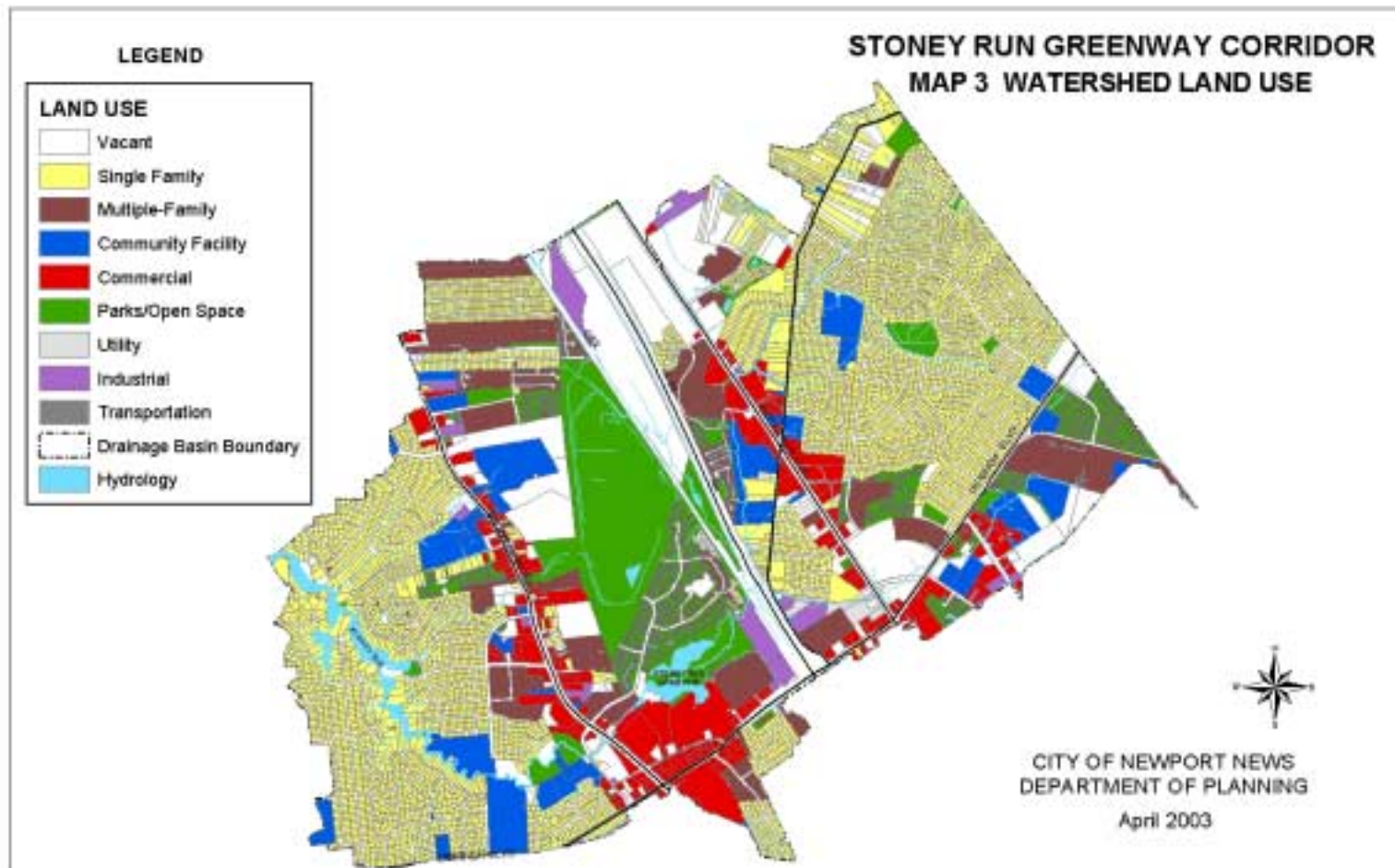
Table 1 and Map 3 illustrate the land use within the watershed. All types of land use discharge pollutants into receiving streams. Even undeveloped forested land creates concentrations of certain pollutants in receiving waters during storm events. These pollutants are: suspended solids, dissolved solids, nitrates/nitrites, phosphorous and ammonia. However, the values of these pollutants are much lower from forested areas than pollutant concentrations from developed impervious surfaces. Impervious surfaces create concentrations of the same pollutants mentioned for undeveloped forested land as well as toxics, such as: arsenic, cadmium, chromium III, copper, lead, and zinc.

In 2001, consultant CH2MHill analyzed the type and amount of pollutants flowing into Stoney Run from the land within the entire drainage basin. The analysis extrapolated both the winter season and summer season pollutants from existing land uses and from data collected from sampling conducted between November 2, 1996 and March 13, 2001 for specific types of land uses. The pollutants included in the analysis were: Total Suspended Solids (TSS), Total Dissolved Solids (TDS), Total Phosphorous as P (TP), Dissolved Phosphorous (DP), Nitrate and Nitrite as N (NO_x-N), Total Kjeldahl Nitrogen (TKN), Total Ammonia as N (NH₃-N), Arsenic (AS-T and AS-D), Cadmium (CD-T and CD-D), Chromium III (CRIII-T and CRIII-D), Copper (CU-T and CU-D), Lead (PB-T and PB-D) and Zinc (ZN-T and ZN-D). Table 2 indicates the different levels of pollutant loadings for the watershed.

Because the watershed is just under eighty five percent (85%) developed, a regional Best Management Practice (BMP) located above tidal Stoney Run is a good opportunity but not the only opportunity for the City to improve water quality in tidal Stoney Run. The Stoney Run sand pits were purchased in November 2002 by the City to create a regional BMP. As a regional BMP it will allow the nutrients, sediments and toxins from upstream development to settle out in the BMP before reaching tidal Stoney Run. Once retrofitted, the sand pits will treat 2,865 acres of the drainage basin and reduce the phosphorous loads by an additional 470 to 520 pounds per year.



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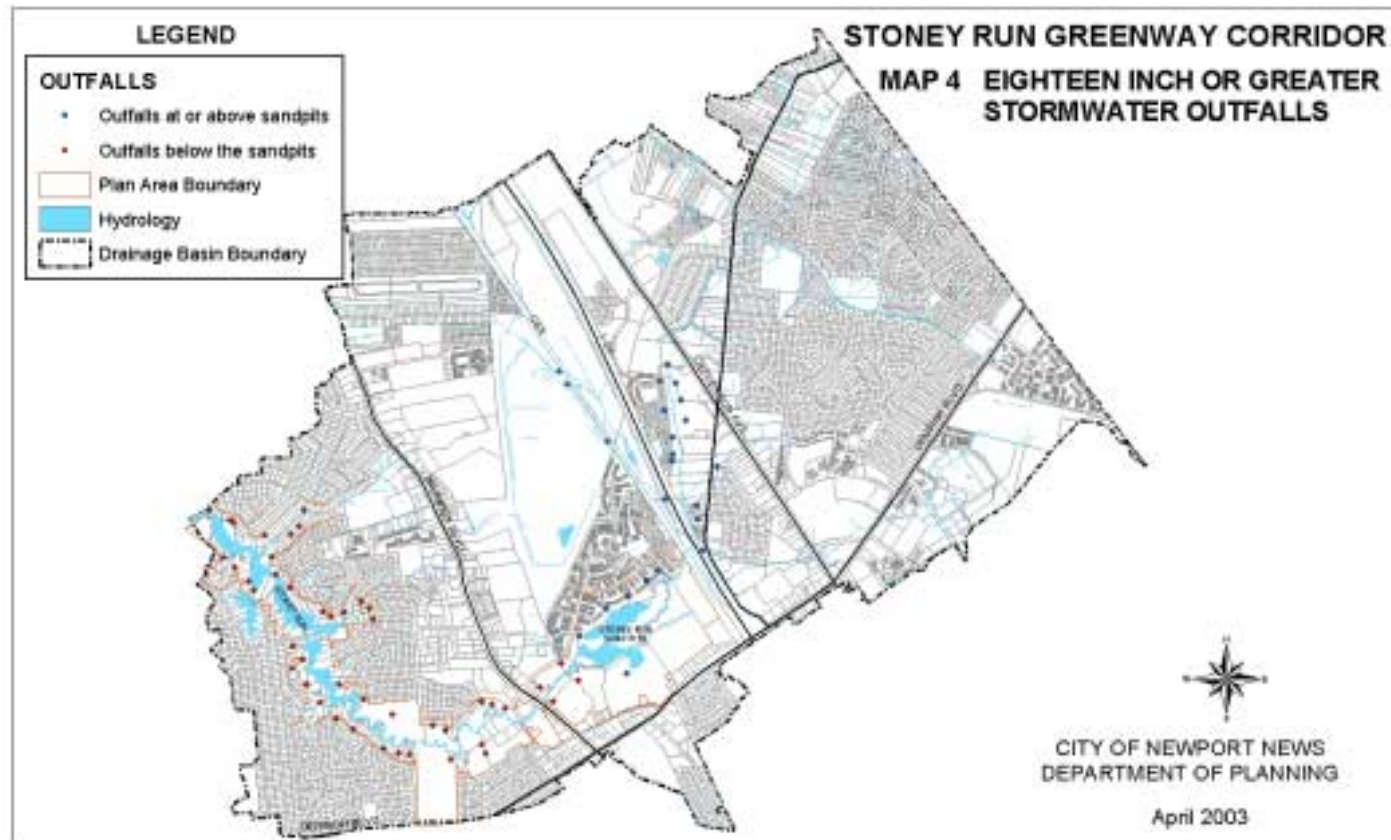


TABLE 2 POLLUTANT LOADINGS FOR STONEY RUN WATERSHED		
	SUMMER SEASON lb/ac*-6 MOS.	WINTER SEASON lb/ac*-6-MOS.
TSS	598,985	472,133
TDS	547,201	416,956
NO_x-N	6,655	5,008
TKN	13,096	9,507
NH₃-N	2,515	2,467
TP	2,534	2,062
DP	850	817
AS-T	0	0
CD-T	1	1
CRIII-T	0	0
CU-T	85	87
PB-T	355	282
ZN-T	1048	827
AS-D	0	0
CD-D	0	0
CRIII-D	0	0
CU-D	0	12
PB-D	7	0
ZN-D	295	254

*ac-area of watershed 4177 acres.

Source: CH2Mhill, Event Mean Concentration Analysis of Stormwater Monitoring Data, Permit Year 5(City of Newport News), May 31, 2001.

The City is currently having the non-tidal wetland areas around the sandpits identified in order to avoid them during construction. One thousand three hundred and fourteen (1,314) acres of the watershed located predominately west of Warwick Boulevard will not have the benefit of the regional BMP to remove phosphorous and other pollutants from its runoff. Unfortunately, most of this acreage is developed, contributing 45 18-inch or greater outfalls discharging directly into tidal Stoney Run. These outfalls are identified on Map 4.

Water Quality of the Warwick River

In addition to the pollutants as identified in Table 2 discharging into Stoney Run from the watershed, the water quality of the tidal portion of the creek is influenced by the water quality of the Warwick River. The Department of Environmental Quality (DEQ) has been monitoring the water quality at station 2-WWK003.98 in the Warwick River at the end of Denbigh Boulevard since 1995. A violation for Fecal Coliform occurred at this monitoring station during each of the following months: August 1996, September 1996, October 1996, April 1997, September 1998 and August 2000. Because more than 10 percent of the samples taken in the last five years at this monitoring station exceeded the parameter for fecal coliform, the Warwick River was designated by DEQ as an impaired waterway in their 2002 303(d) Total Maximum Daily Load (TMDL) Priority List. Unless the upper part of the Warwick River is taken off the list, a Total Maximum Daily Load (TMDL) plan is required to be written by DEQ staff to meet a 2010 deadline. "A

TMDL is the amount of pollution a stream can receive and still meet Water Quality Standards. A TMDL plan has seven elements:

- ❑ Developed to meet the applicable water quality standard,
- ❑ Contains a waste load allocation for permitted point sources and for non-point sources,
- ❑ Contains a margin of safety to account for uncertainties in TMDL development,
- ❑ Developed for critical stream conditions,
- ❑ Consider seasonal variation,
- ❑ Consider background contributions, and
- ❑ Subject to public participation. “¹

Plan Area

Existing conditions described in the plan area are as follows: land use, topography, tidal and non-tidal wetlands, sensitive soils, floodplain and the Chesapeake Bay Preservation Area.

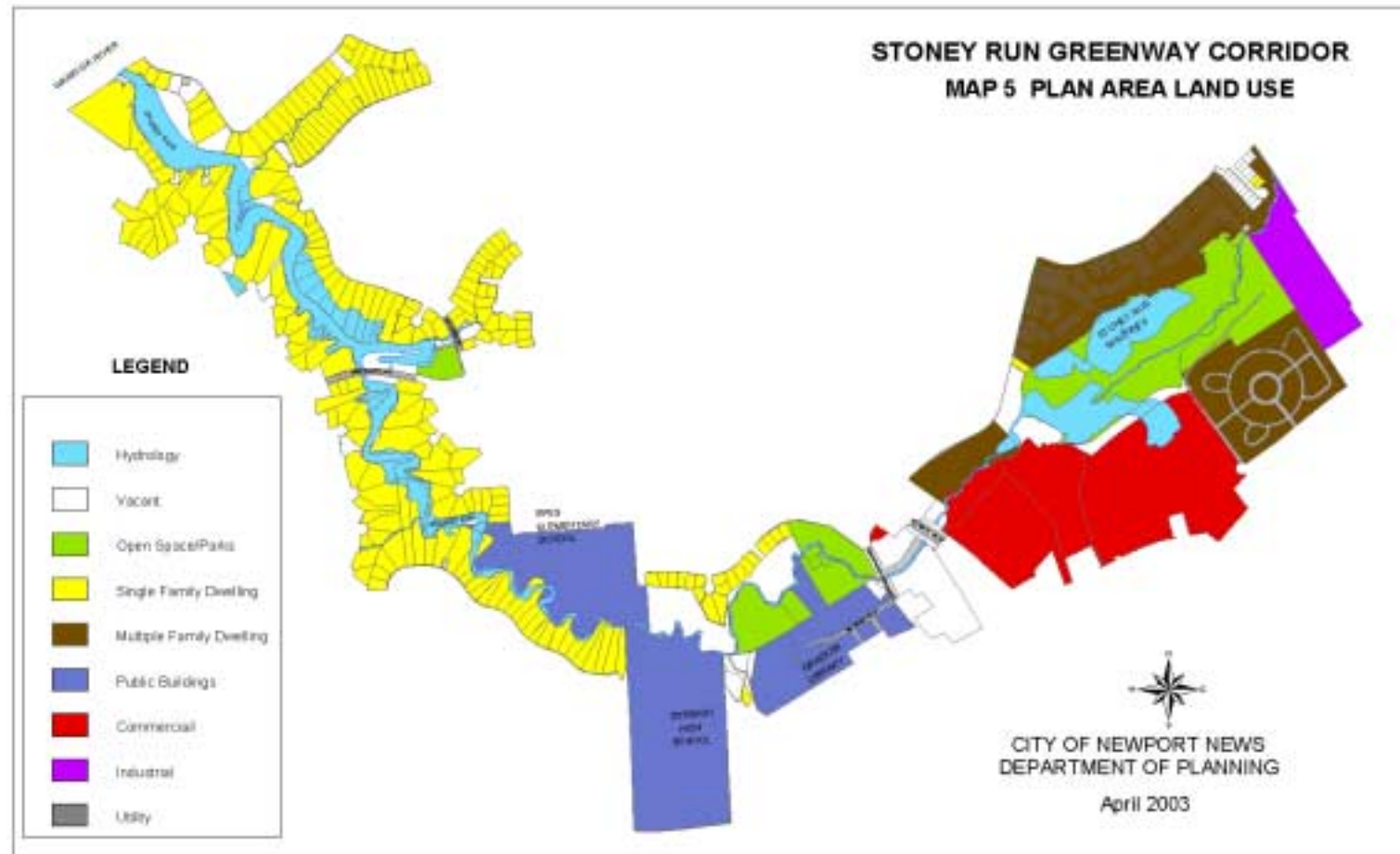
Land Use

Most of the land along Stoney Run is designated for single-family residential. Almost one hundred and twenty eight (128) acres, or one quarter of the plan area are single-family uses. These properties typically have immediate water access to the Stoney Run Creek. Only fifty-eight (58) acres are used for commercial purposes. These commercial uses can significantly impact the water quality in a water-oriented community. There are 30-acres that are currently vacant or undeveloped, which could provide opportunities for greenway initiatives. The remainder of the proposed greenway, one hundred and eighty three (183) acres, is comprised of a mixture of multi-family, parks and open space, and community facility uses. A graphic depiction of land use in the plan area is found on Map 5.

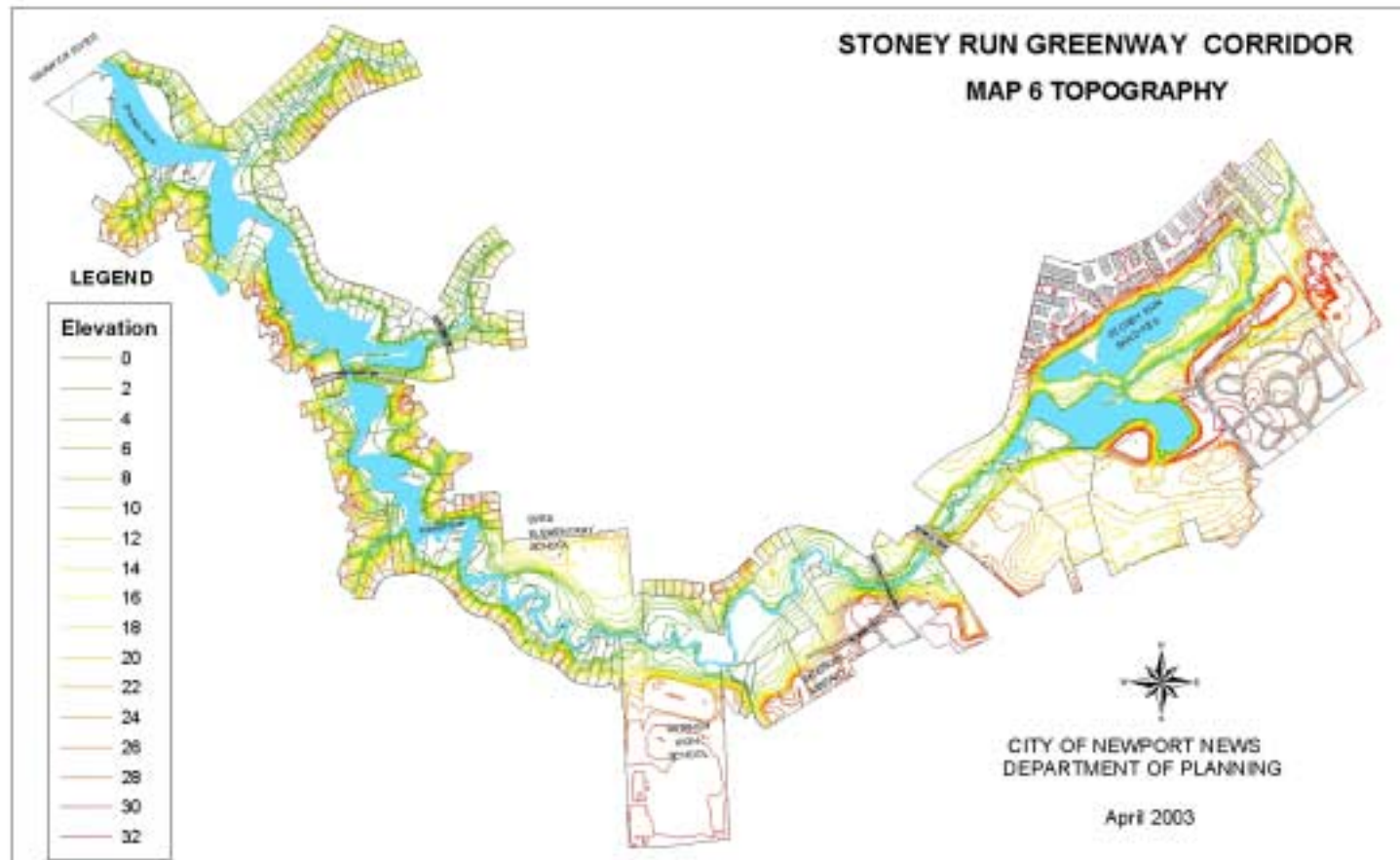
Topography

Topography in the plan area ranges from sea level to 32 feet above sea level. The highest elevation is found between Interstate 64 and Warwick Boulevard in the area of Courthouse Green townhouses and Stoney Run sandpits. The lowest elevation extends from the Warwick River to Denbigh High School. From the closeness of the contour lines on Map 6 Topography, it is apparent that there are fairly steep slopes along certain sections of Stony Run.

¹ Department of Environmental Quality web site, <http://www.deq.state.va.us/tmdl/faqdev.html>



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Tidal and Non-Tidal Wetlands

Based on the National Wetlands Inventory (NWI) dated in the 1990's, there are two types of tidal wetlands totaling approximately seventy-five (75) acres and three types of non-tidal wetlands totaling eleven (11) acres in the plan area. Based on the NWI, the most prevalent type of wetland in the plan area is identified as Intertidal Estuarine Emergent Irregularly Flooded followed by the creek, which is identified as Subtidal Estuarine Unconsolidated Bottom. The tidal and non-tidal wetlands in the plan area are graphically depicted on Map 7. The 1977 Virginia Institute of Marine Science (VIMS) Tidal marsh Inventory identified Stoney Run as having Group I marshes, which have the highest values in productivity and wild fowl and wildlife utility and are closely associated with fish spawning and nursery areas.

Sensitive Soils

There are approximately one hundred and seventy five (175) acres of sensitive soils in the plan area, which are depicted on Map 8. The types of sensitive soils are hydric, highly erodible, highly permeable, and high shrink swell.

A hydric soil is saturated, flooded, or ponded long enough during the growing season to develop a deficiency in oxygen in the upper part of the soil column. Hydric soils are indicative of wetlands. Hydric soils in the study area are Johnston Silt Loam, Tomotley Fine Sandy Loam, Axis Very Fine Sandy Loam, Bethera Silt Loam, Bohicket Muck, and Chicahominy Silt Loam, which comprise ninety-six (96) acres of the plan area.

A high shrink-swell soil is a soil with the potential for a change in volume with the gain or loss of moisture. Two of the hydric soil types, Chicahominy Silt Loam and Bohicket Muck, have high shrink-swell potential. Peawick Silt Loam is another soil with high shrink-swell potential, which is almost one acre of the plan area and identified in red on the Map 8.

Floodplain

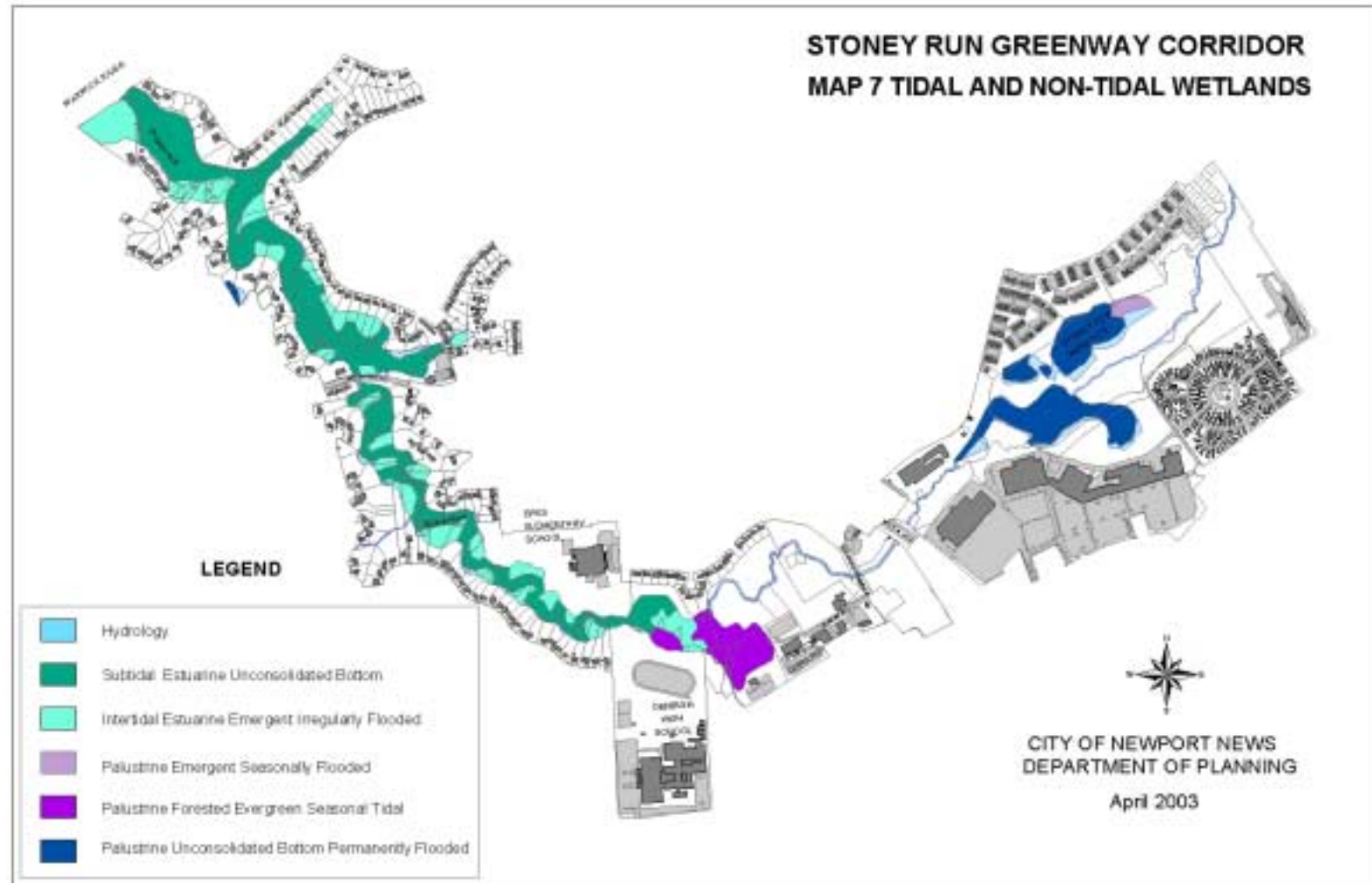
A floodplain is a flat or low land area adjoining a river, stream, or watercourse subject to partial or complete flooding. The 100-year floodplain comprises one hundred seventy-six (176) acres of land in the plan area and is graphically depicted on Map 9. The undeveloped 100-year floodplain has specific functions for water quality, flood control, and fish and wildlife habitat. Vegetation in the floodplain filters contaminants, and retains sediment. Peak storm flows are detained in undeveloped areas and the meandering waterways and vegetation delay flows. The vegetation and water within the floodplain provide cover, food and water for diverse wildlife.

West of Warwick Boulevard, there are 24 single-family properties whose buildings are totally or partially within the 100-year floodplain. East of Warwick Boulevard, there is

one multi-family senior housing structure that is located within the 100-year floodplain; however, the first floor elevation is above the 100-year flood elevation. Also, there are three mobile homes and one townhouse found in the floodplain.

Chesapeake Bay Preservation Area

The plan area contains approximately two hundred and six (206) acres of land in the Chesapeake Bay Preservation Area, not including the protected wetlands and water. The 100-foot buffer of the Resource Protection Area (RPA) is comprised of about seventy-four (74) acres of land. The Resource Management Area is one hundred thirty-two (132) acres of land. West of Warwick Boulevard there are one hundred sixty-eight (168) single-family homes completely or partially within the RPA. This existing development makes it difficult to preserve or re-establish a significant depth of creek side vegetative buffer. The Chesapeake Bay Preservation Area is graphically depicted on Map 10.









CONCERNS/ISSUES AND SOLUTIONS

During the development of the Stoney Run Water Quality Improvement Greenway Plan, issues and concerns of the property owners were determined and property owner solutions to the problems were generated. These concerns and property owner solutions are grouped under water quality, bank and shoreline erosion, public access, and stormwater management.

Water Quality

Concerns/Issues

- ❑ Oil slicks on the water surface
- ❑ Trash and debris in the creek
- ❑ Illegal dumping
- ❑ Washing of harmful components of street patching materials into the waterway



Stoney Run west of Warwick Blvd.
Source: Department of Planning, June 2002

Solutions

- ❑ Increase property owner education of water quality problems and solutions
- ❑ Perform street cleaning more often to reduce trash and debris in the creek
- ❑ Put floating filters at stormwater outfalls to creek to contain oil slicks and litter
- ❑ Secure local business involvement to clean up properties



Stoney Run west of Warwick Blvd.
Source: Department of Planning, June 2002

Bank/shoreline erosion

Concerns/Issues

- ❑ Destruction of streamside vegetation by erosion from increased volume of water and wildlife primarily geese
- ❑ Erosion of streamside properties by the wake from jet skis

Solutions

- ❑ Create tax incentives for residential shoreline erosion improvement projects
- ❑ Post more No Wake Zone signs
- ❑ Reclaim portions of the floodplain to reduce downstream erosion
- ❑ Provide homeowners with marsh grasses
- ❑ Prohibit jet ski use in creek



Stoney Run north northwest of Beechmont Bridge

Source: Skipp Gibbs, June 2002

Public Access

Concerns/Issues

- ❑ Reduced accessibility in the navigable portion of Stoney Run due to silt build up in channels.
- ❑ Location of public access – trails—on private property
- ❑ Safety hazard caused by children moving riprap from slopes under the Beechmont Bridge into the channel

Solutions

- ❑ Improve accessibility of creek for boaters by dredging most navigable portion of Stoney Run
- ❑ Remove riprap from the channel under the Beechmont Bridge



Stoney Run under Beechmont Bridge

Source: Skip Gibbs, June 2002

Stormwater Management

Concerns/Issues

- ❑ Stormwater volume from the proposed Stoney Run Park development
- ❑ Piped drainage versus open ditch drainage
- ❑ Increased volume of stormwater in creek between Stoney Ridge Court and Garfield Drive

Solutions

- ❑ Remove obstructions to water flow, such as dead trees, tires, shopping carts, etc

RECOMMENDATIONS

Below are the recommendations developed from the property owner's concerns/issues and solutions.

Recommendation #1: Reduce the amount of trash, litter, and other solid waste in the creek.

Actions/Strategies

- ❑ Having privately sponsored but regularly scheduled creek cleanup days,
- ❑ Performing street cleaning more often,
- ❑ Engaging local business community to clean up trash on their properties,
- ❑ Installing floating filters at outfalls, and
- ❑ Coordinating with the City's Environmental Commission and the Recycling/Solid Waste Division of Public Works to establish an adopt-a-stream program.

Recommendation #2: Reduce the nitrogen and phosphorous pollutant loads.

Actions/Strategies

- ❑ Reducing the use of pesticides and fertilizers containing phosphorous on land within the Stoney Run watershed, and
- ❑ Constructing the BMP retrofit for Run Sandpits.

Recommendation #3: Reduce the stream bank erosion.

Actions/Strategies

- ❑ Reclaim floodplain areas, where possible, to reduce downstream erosion,
- ❑ Increasing width of existing stream bank vegetative buffer,
- ❑ Posting slower speed limits in Stoney Run,
- ❑ Replanting marsh grasses where suitable, and
- ❑ Creating local tax incentives for residential shoreline erosion control projects.
- ❑ Investigating the prohibition of jet-ski operation in the creek.

Recommendation #4: Protect existing and provide additional wildlife habitat.

Actions/Strategies

- ❑ Preserving existing wildlife areas,

Recommendation #4:

Actions/Strategies (continued)

- ❑ Establishing wider stream bank vegetative buffers to include trees, shrubs, and ground covers, where possible,
- ❑ Reclaiming floodplain areas, where possible, and vegetate with suitable plant species,
- ❑ Replanting marsh grasses, where suitable, and
- ❑ Providing nesting opportunities for wildlife, such as installing wood duck houses, Raptor platforms, and other birdhouses.
- ❑ Investigating the prohibition of capturing turtles in the creek.

Recommendation #5: Provide for Additional Public Access and Recreational Opportunities.

Actions/Strategies

- ❑ Develop pedestrian walking trails and boating opportunities at Stony Run Sandpits and on publicly owned land adjacent to the creek, and
- ❑ Ensure new facilities meet standards for American Disability Act.

Recommendation #6: Develop public relations/education program in support of implementation efforts.

Actions/Strategies

- ❑ Sponsor water quality education workshops and mailings for creek side and watershed residents.
- ❑ Acknowledge property owners publicly who have installed streamside buffers, planted marsh grasses, etc. in support of the plan recommendations.

Recommendation #7: Assess the effectiveness of the Stoney Run Water Greenway Corridor Plan by developing a monitoring plan.

Actions/Strategies

- ❑ Conducting studies and follow-up monitoring of biological and habitat indicators at locations and intervals specified in the monitoring plan,
- ❑ Studying erosion rates before and after implementation, and
- ❑ Using citizen volunteers and local university students to conduct the studies and monitoring.

IMPLEMENTATION ACTION PLAN

For the purposes of discussing implementation of the recommendations, the

creek has been divided into three segments. Segment one is located between Warwick Boulevard and Interstate 64. Segment two is located between the Beechmont Bridge and Warwick Boulevard. Segment three is located between the Warwick River and the Beechmont Bridge. Map 11 illustrates the location of these three segments.

Segment One

The portion of Stoney Run in segment one is commonly called the Stoney Run Sandpits. These sandpits function as a regional BMP for the City. In 1998, URS Greiner did an environmental assessment and an analysis of recreational uses for this segment. The URS Greiner concept plan for recreational uses of the area includes walking trails, wildlife observation areas, boating, open space for picnics, and two small parking areas. (See Figure 1.) City management, City Council, or the community has not endorsed the design of the URS Greiner concept plan formally; therefore, it is illustrative. The following photographs show the recreational and environmental education opportunities in the Stoney Run Sandpit area.



Stoney Run Sandpit

Source: Department of Planning, June 2002



Stoney Run Sandpit

Source: Department of Planning, June 2002



Stoney Run Sandpit

Source: Department of Planning, June 2002.

Implementation activities in segment one would be:

- ❑ Property owners/City to clean up the trash and litter on the land and in the creek.
- ❑ Reduce the use of pesticides and fertilizers on land adjacent to the creek.
- ❑ Preserve and enhance existing wildlife areas.
- ❑ Develop passive recreational areas similar to those identified in the 1998 URS Greiner concept.
- ❑ Preserve/replace or enhance streamside vegetative buffers.
- ❑ Complete the retrofit of the sandpits for a regional BMP.
- ❑ Fund implementation of URS Plan for Stoney Run.

Segment Two

The ownership of the land adjacent to segment two of the creek will have an impact on the implementation of creek improvement policies and strategies. More control over the implementation of creek improvement policies and strategies will be possible on the publicly owned land behind Denbigh High School, Epes Elementary School, and the Grissom Library. In 1998, URS Greiner did an environmental assessment and an analysis of recreational uses for the publicly owned portions of property as well as for some private land that could be purchased by the City. (See Figure 2) City management, City Council or the community has not endorsed the design of the URS Greiner concept plan formally; therefore, it is illustrative. Below is a portion of segment two.



Stoney Run south southeast of the Beechmont Bridge

Source: Department of Planning, June 2002.

Implementation activities in segment two would be:

- ❑ Clean up the trash and litter on the land and in the creek.
- ❑ Reduce the use of pesticides and fertilizers on land adjacent to the creek.



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Implementation activities in segment two (cont)

- ❑ Preserve and enhance existing wildlife areas by providing nesting opportunities for wildlife, such as wood duck houses, Raptor platforms and other birdhouses.
- ❑ Implement passive recreational areas on publicly owned land similar to those represented in the URS Greiner concept plan.
- ❑ Preserve/replace or enhance streamside vegetative buffers.
- ❑ Reclaim portions of the floodplain to reduce downstream erosion.
- ❑ Enhance wetland marshes by planting marsh grasses and trimming back trees to allow the sunlight to get to the shoreline areas.
- ❑ Remove riprap materials from the channel under the Beechmont Bridge.
- ❑ Remove large obstructions to water flow, such as dead trees, tires, etc.
- ❑ Install floating filters at outfalls.

Segment Three

This segment of Stoney Run is the portion with navigable water at high tide between the Beechmont Bridge and the Warwick River. Property ownership in this segment of the creek is primarily private, except for a few small parcels. The high degree of private ownership will impact how successfully and which of the creek improvement strategies are implemented. The photo below shows a portion of segment three.



Stoney Run north northwest of Beechmont Bridge

Source: Department of Planning, June 2002

Implementation activities in segment three would be:

- ❑ Clean up the trash and litter on the land and in the creek.
- ❑ Reduce the use of pesticides and fertilizers on land adjacent to the creek.
- ❑ Preserve and enhance existing wildlife areas.
- ❑ Preserve/replace or enhance streamside vegetative buffers.

Implementation activities in this segment 3 (continued):

- ❑ Enhance wetland marshes by planting marsh grasses and pruning trees to allow the sunlight to get to the shoreline areas.
- ❑ Create local tax incentives for residential shoreline erosion control projects.
- ❑ Post lower speed limit signs to reduce boat wake.

All Segments

Implementation activities common to all the segments, i.e., clean up of trash and litter on land and in the creek, reducing the use of pesticides and fertilizers, preserving/replacing streamside vegetative buffers, and preserving and enhancing wildlife areas could be implemented concurrently throughout the project area. An educational program that could be offered to the residents and property owners of Stoney Run creek through mailings and workshops could jump-start a voluntary effort to implement these activities. City staff involved with recycling/solid waste, stormwater quality, parks and recreation and landscape design would be essential to the effectiveness of this program, as well as staff from the Virginia Institute of Marine Science, and Virginia Cooperative Extension Service. A schedule for completion of the implementation activities is found in Table 3.

Activity	Lead Department	Funding Source (if any)	FY 2004												FY 2005												FY 2006											
			J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J	J	A	S	O	N	D	J	F	M	A	M	J
Privately sponsored creek clean-up sites	Property Owners and City		TO BE DECIDED BY THE COMMUNITY																																			
Partners school cleaning crew offers	Public Works																																					
Business Community clean-up team on local properties	Cities compliance																																					
Local Trading Ware is outfalls and clean them out (Pilot Project)	Recycling/Solid Waste																																					
	Stormwater Management																																					
	Public Works																																					
Adopt a stream program	Recycling/Solid Waste, Stormwater Management and Property Owners		TO BE DECIDED BY THE COMMUNITY																																			
Protect riparian areas																																						
- Conduct specific property benefits	Stormwater Management	BMP Banking Program																																				
- Acquire properties																																						
- Design, Rehabilitation, Projects																																						
- Develop projects																																						
- Promote growth of riparian bank vegetation	Planning/Property Owners																																					
- Buffer																																						
Posting lower speed limits on Stoney Run	Parks and Rec/VMMC																																					
Protect riparian grasses	Planning/Stormwater Management/Property Owners	Grass																																				
- Seed sites																																						
- Plant grasses																																						
Use incentives for residential planting	Planning/Residents/ City Admin's																																					
Assess water																																						
Reduce use of pesticides and fertilizers	Stormwater Management/Property Owners																																					
Conduct BMP audits for the Stoney Run Corridor	Stormwater Management	BMP Banking Program																																				
- Develop	Property Owners/CCO/VMMC																																					
- Preserve existing wildlife areas	Property Owners/CCO/VMMC																																					
- Provide nesting opportunities for wildlife	Property Owners/CCO/VMMC																																					
Develop pedestrian walking trails and seating opportunities	Planning/Parks and Rec	BMP Banking Program																																				
- Planting/Design																																						
- Construct (and Pre-Apply Phase I)																																						
- Construct by Stoney Run Library Phase I																																						
Develop monitoring plan to assess plan effectiveness	Planning/Stormwater Management/CCO/ CNL	Currently Unknown																																				
- Studies and follow-up monitoring																																						
- Review data before and after																																						

REFERENCES

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- 3) Greenways a Guide to Planning Design and Development, Charles A. Flink and Robert M. Searns, the Conservation Fund, 1993.
- 4) Lake Barcroft: Urban Best Management Practices, by GKY and Associates for the Lake Barcroft Watershed Improvement District, August 2002.
- 5) Longfellow Creek Habitat Restoration Master Plan, prepared for Seattle, WA by URS Greiner Woodward Clyde, January 20 1999.
- 6) Stream Corridor Restoration: Principals, Processes and Practices, by The Federal Interagency Stream Restoration Working Group, published October 1998 and revised August 2001.